The Secret Sauce of Visual Analytics
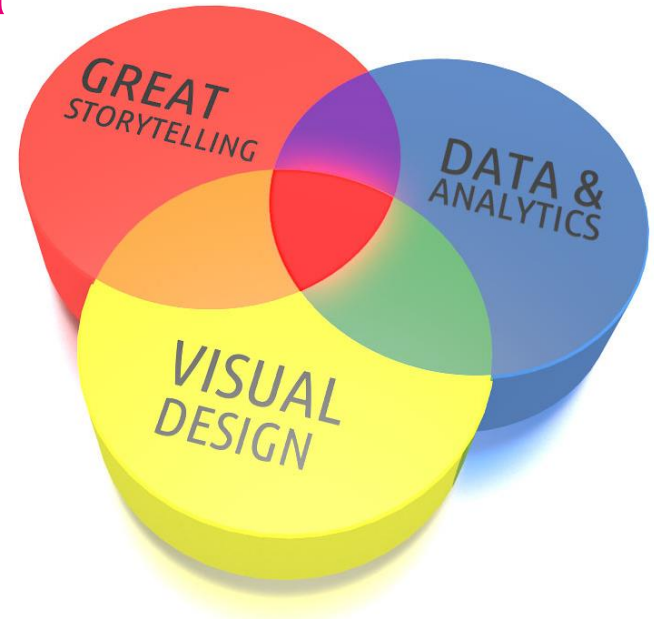
How to Tell Great Stories with Data

Neil Sellers

Qubix International Ltd

October 2014

GREAT STORYTELLING

DATA & ANALYTICS

VISUAL DESIGN

AGENDA

- Emerging new trends in mobile analytics
- Approaches to delivering great stories with data
- The benefits of telling stories using graphical methods
- How to make more profitable decisions
- A visually-driven approach

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EMERGING TRENDS...

ORACLE® Platinum Partner

Oracle Cloud

Platform Services

Application Services

Social Services

Common Infrastructure Services

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MEET MOBILE MATT….Todays Mobile User

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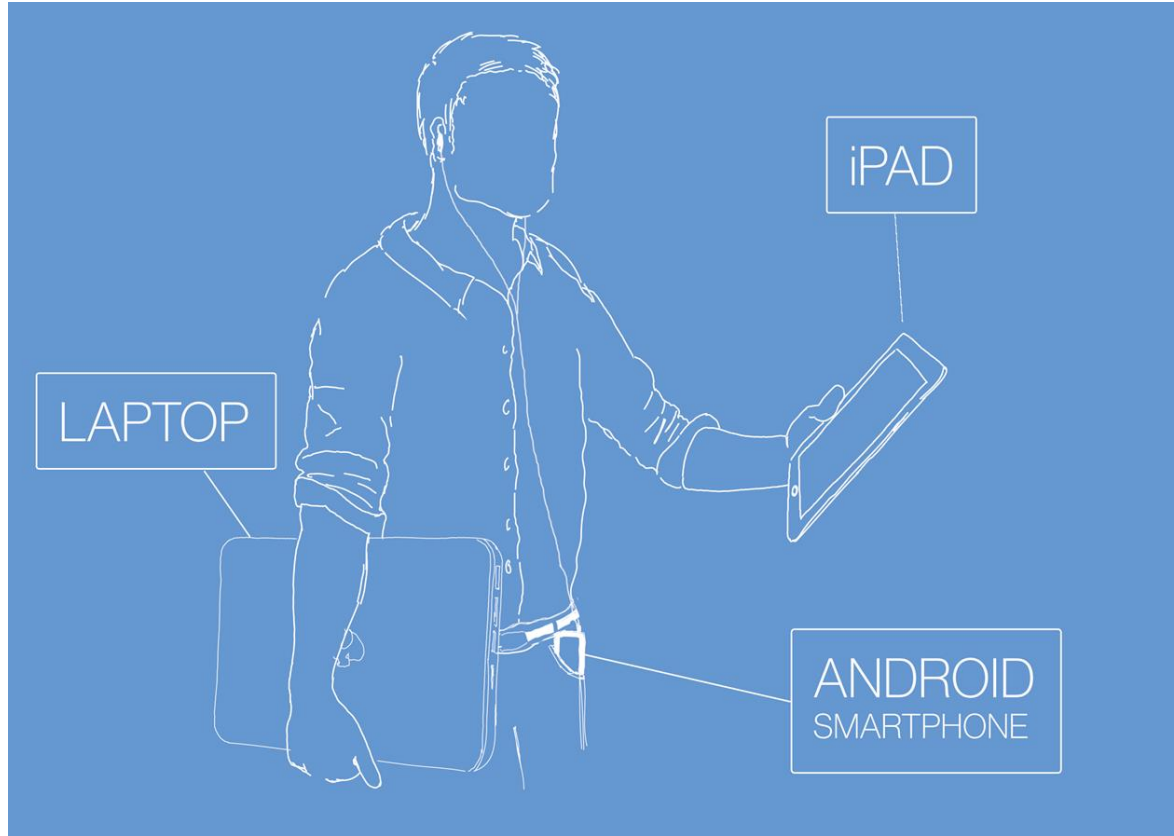
MOVE TO MOBILE

"…consumers are increasingly turning away from the PC and towards mobile devices to access the web and email"

Read more at http://mobilemarketingmagazine.com/content/using-mobile-reach-your-customer#6WTLXHIIaqBKOX3b.99

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DON'T FORGET YOUR TOOTHBRUSH...

"MORE PEOPLE AROUND THE WORLD NOW OWN A MOBILE PHONE THAN OWN A TOOTHBRUSH."

4.8 BILLION PEOPLE
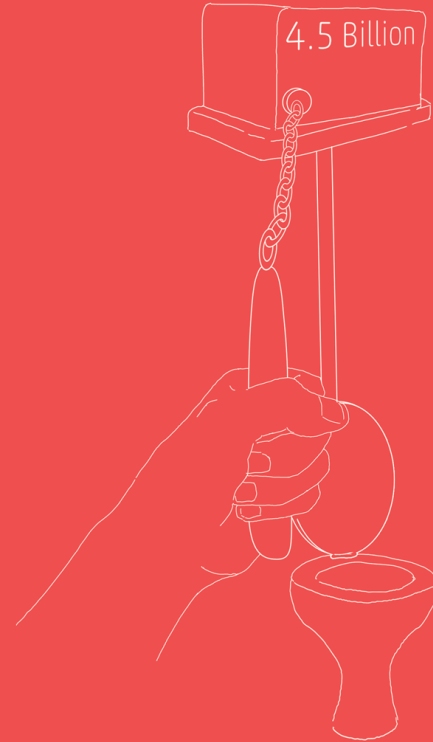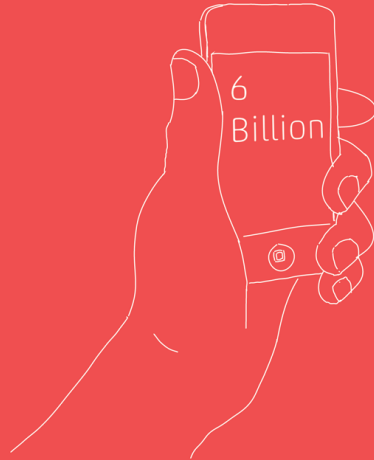
4.2 BILLION PEOPLE

http://mobilemarketingmagazine.com/content/more-mobile-phone-access-toothbrushes-says-google#UELiRwFSkkrBT8G0.99

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WHERE'S MY MOBILE PHONE…

"THE U.N. REVEALED THAT MORE PEOPLE HAVE ACCESS TO MOBILE PHONES THAN TOILETS"

4.5 Billion

6 Billion

ad more at:

http://newsfeed.time.com/2013/03/25/more-people-have-cell-phones-than-toilets-u-n-study-shows/

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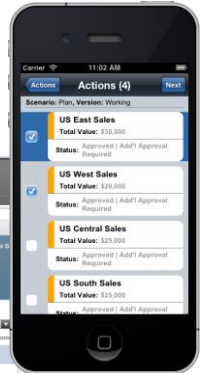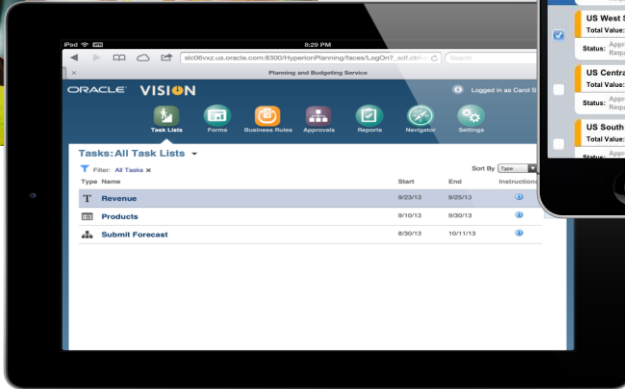
MOBILE TOILET TRIVIA SURVEY

39% of people take their smartphones with them into the restroom

19% of people drop their phones down toilet

On that basis….almost half the people who take their phones into the toilet end up dropping them into the toilet.

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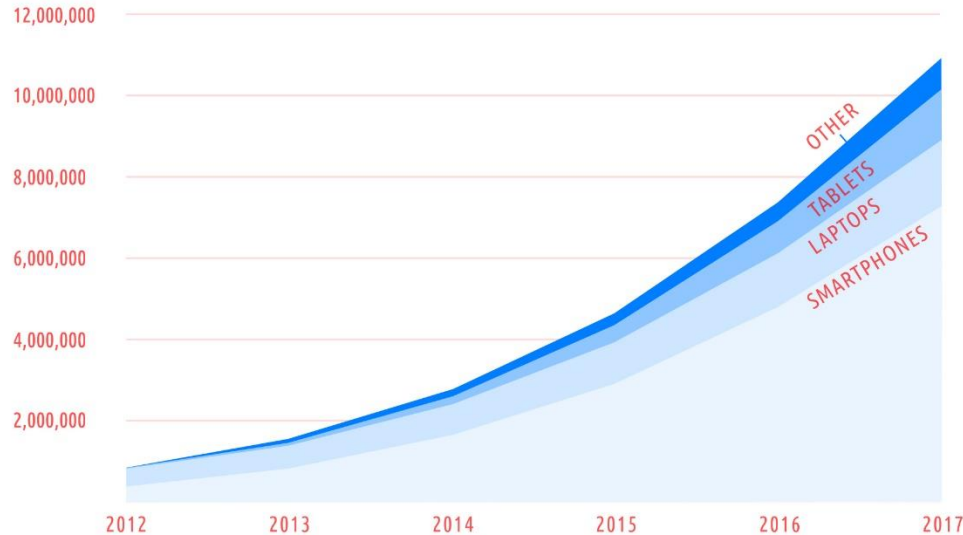
Cloudy with a chance of Mobile!

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WORLD AWASH WITH DATA...

- IDC forecasts a 44-fold increase in data volumes between 2009 and 2020
- Mobile is playing a key role in this explosion
- The majority of Big Data in the future will be created and consumed on mobile devices

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BI GOING MOBILE

Is your enterprise going mobile?

By 2015, the world's mobile worker population will reach **1.3** billion representing **37.2**% of the total workforce

33%
Business intelligence functionality will be consumed via handheld devices by 2013

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MOBILE EXPERIENCE PRINCIPLES

- **Value**

- **Context**

- **Streamlined**

- **Device portability**

- **Layers of detail**

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APPROACHES TO DELIVERING GREAT STORIES WITH DATA...

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WHEN IS DATA VIZ VALUABLE?

Data visualization is about communicating an idea that will drive action.
When is it valuable?

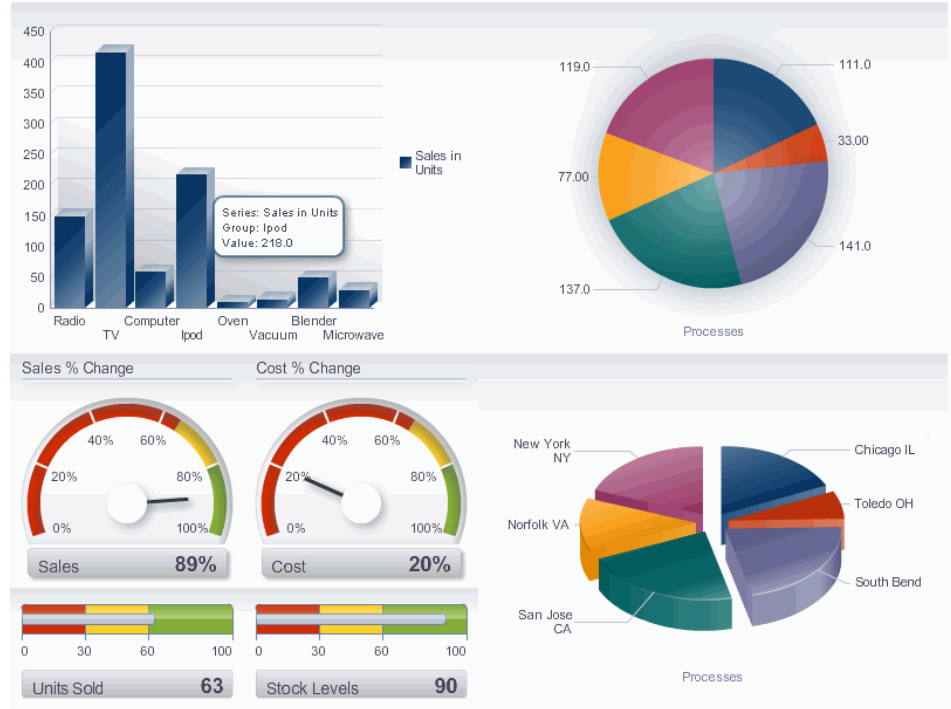Leading Innovation in Business Analytics

WHEN TO USE VISUALIZATIONS OF DATA?

- To confirm an assumption

- To better understand circumstances and develop new insights

- For exploration…"gameification"

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3 THINGS GOOD VISUALS NEED

- **Super quality data...**

- **Obvious context...**

- **Limited bias...**

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EXAMPLE – FLIGHT PATHS

Between 1974 and 2009, cumulatively, Europe was responsible for 38% of aviation traffic, Asia/Pacific was responsible for 29%, and North America for 20%.

Source: Michael Markieta, ARUP

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HOW TO TELL GOOD STORIES...

Find the compelling narrative

- Don't be boring...make it interesting!

- You need a hook, momentum and a clear purpose

- The goal is to spark the viewers' imagination to encourage exploration and interaction...think Gameification!

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HOW TO TELL GOOD STORIES...

Think about your audience - Who's the recipient of your presentation or dashboard?

- Executives
- Managerial
- Generalist

Be objective and offer balance

- Tell us what the data says, not what we want it to say!
- Ultimately, decision makers will sniff out inconsistencies and bias.

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HOW TO TELL GOOD STORIES...

Don't censor
- the complete story.
- "the best representation of what the data says?"

Edit, Edit, Edit

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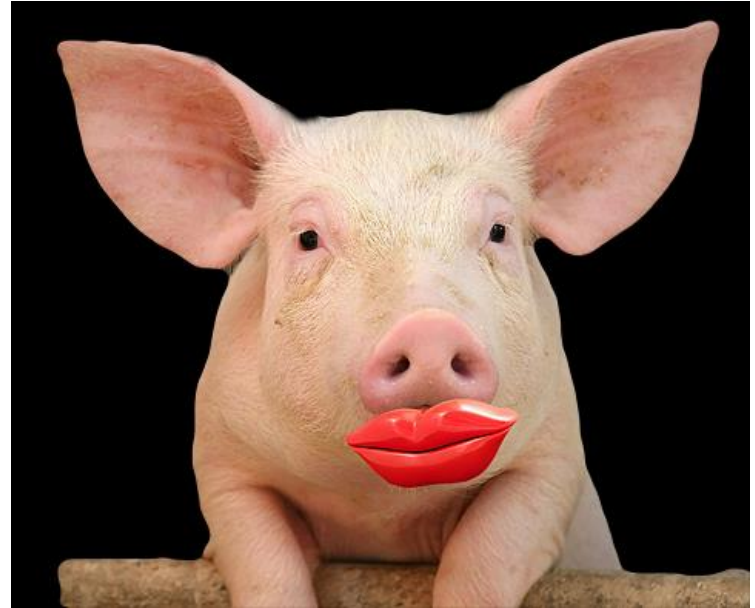
EXAMPLE – OUT OF SIGHT, OUT OF MIND

Out of Sight, Out of Mind: A visualization of drone strikes in Pakistan since 2004

Year	Number of Attacks	Number Killed	
		Min.	Max.
2004	1	5	8
2005	3	12	13
2006	2	90	102
2007	4	48	77
2008	36	219	344
2009	54	350	721
2010	122	608	1,028
2011	72	366	599
2012	48	222	349
2013	12	62	73
Total	354	1,982	3,314

1) US Drone Strike Statistics estimate according to the New America Foundation. (As of 8 June 2013)

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BENEFITS OF TELLING STORIES WITH DATA...

VALUE OF GOOD VISUALS...

- Our brains are meant to see in pictures.

  - A lot of data today doesn't work well in grids, columns & graphs.

  - We need to see underlying patterns and stories to the data

- Easy to quickly understand relationships, patterns, and stories

- Visualization tools can permit interactivity with the underlying data

- Do a better job of analyzing, comprehending, and presenting information

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STRATEGIC BENEFITS

- How you use data

- Powerful mobile analytics

- Bringing people together

- Data on your own terms in your own time.

- Align business activities with corporate strategy

- Understand it and act on it

- Reduce time spent

- Bring people closer

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EXAMPLE - LONDON IN MOTION

http://jaygordon.net/londonviz.html
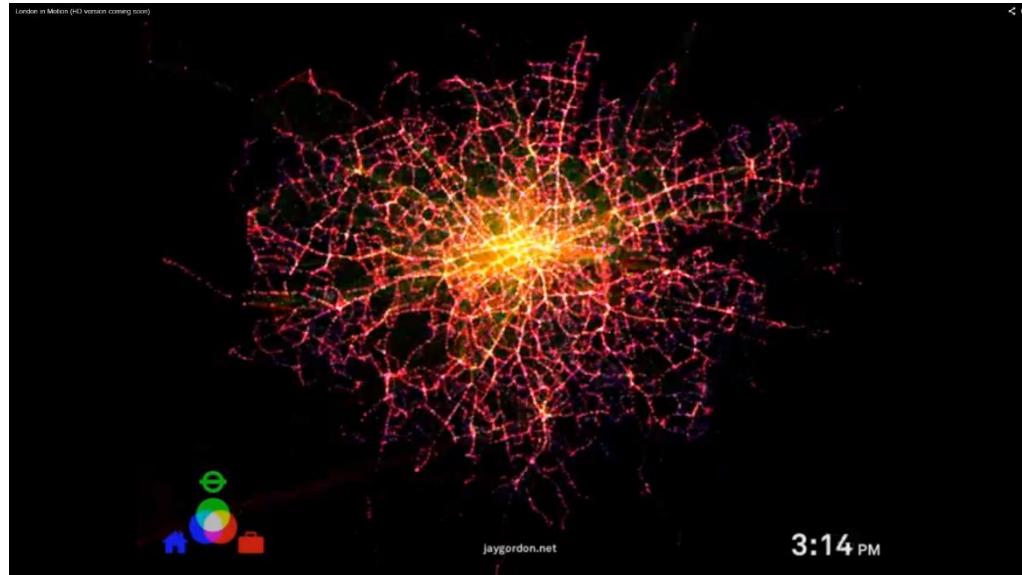
This visualization merges all 16 million daily transactions made on London's Oyster card with vehicle-location data from the city's 8,500 buses.
- Each pixel represents a 100-meter square section of Greater London
- Brightness indicates the number of riders
- Green indicates the number of passengers
- Blue indicates the presence of riders
- Red indicates cardholders who are between transit trips

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MAKING MORE PROFITABLE DECISIONS...

ANALYSING THE DEVELOPMENT COST OF BUILDING A CONCORDE USING VISUAL ANALYTICS

Cloudy with a chance of Mobile!

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THE CHALLENGE

- Feasibility of producing Concordes
- We have a list of necessary components
- Cost for us to produce
- Zoom in to Concorde areas to expose the underlying components
- OBIEE and its integration with MapViewer

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THE DASHBOARD

Interactive Visualisation Area

Table of Details

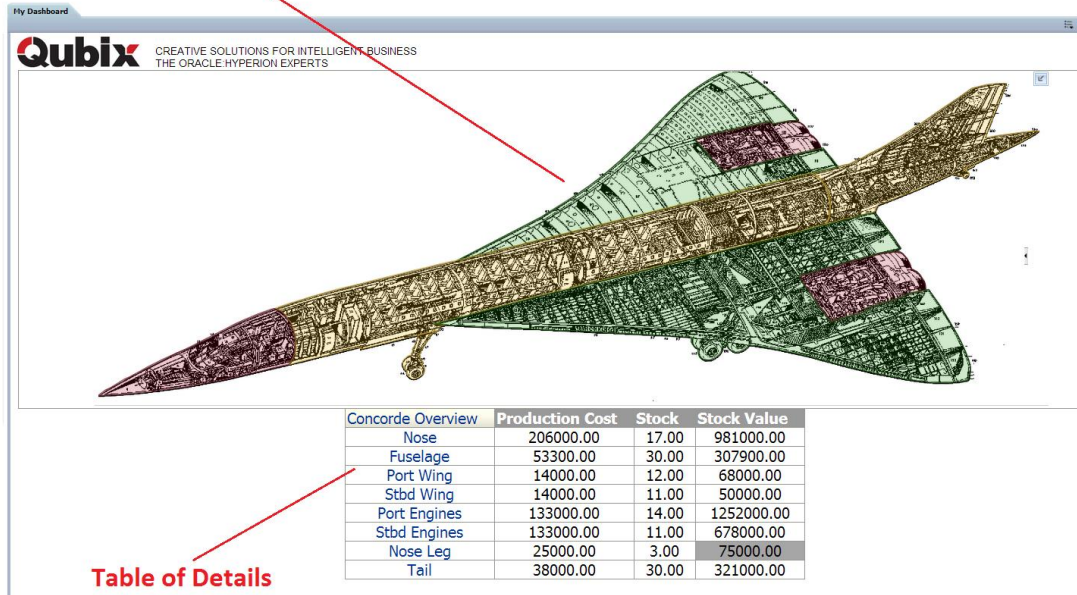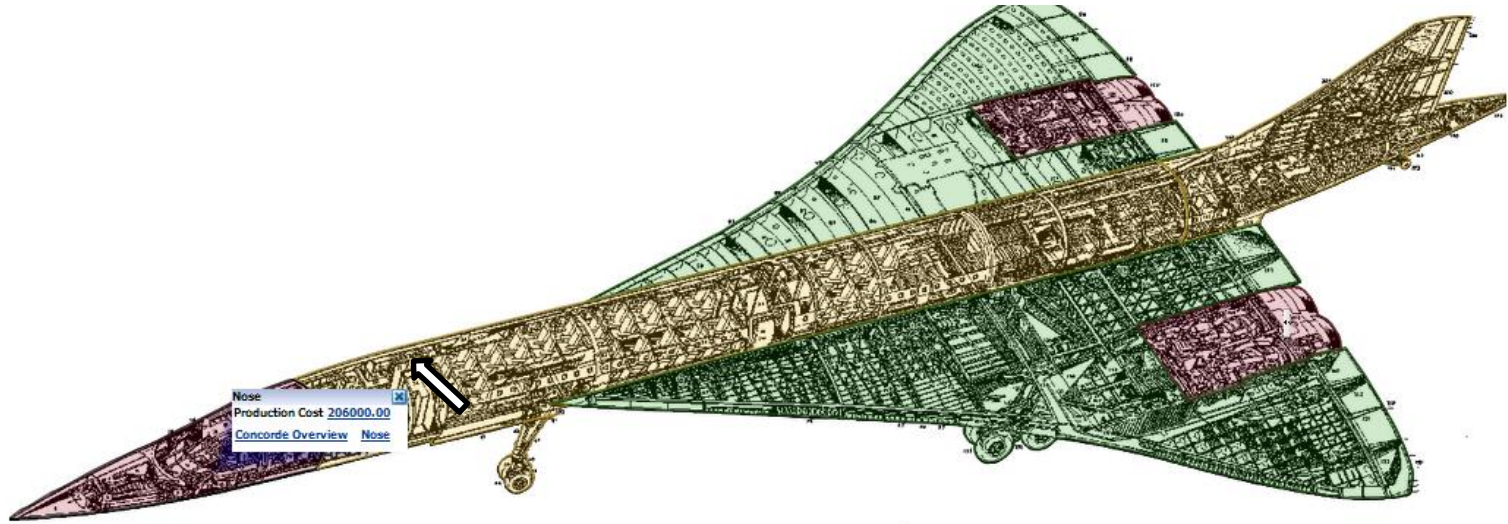| Concorde Overview	Production Cost	Stock	Stock Value
Nose	206000.00	17.00	981000.00
Fuselage	53300.00	30.00	307900.00
Port Wing	14000.00	12.00	68000.00
Stbd Wing	14000.00	11.00	50000.00
Port Engines	133000.00	14.00	1252000.00
Stbd Engines	133000.00	11.00	678000.00
Nose Leg	25000.00	3.00	75000.00
Tail	38000.00	30.00	321000.00

The table of details relates to the visualisation above

Immediately, our analysts can see that the concorde's nose and the two engines have relatively high production costs as they are shaded in red.

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ZOOMING IN TO THE DETAILS


Nose
Production Cost 206000.00
Concorde Overview   Nose

Let's take a deeper look…
By clicking on the area we want to see in more detail, we can see the total production cost of the area which is 206,000 for the Concorde's nose.
By clicking on the component name, the system "drills down" to the next level of detail to show us how the nose's production cost is built…

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COST BREAKDOWN
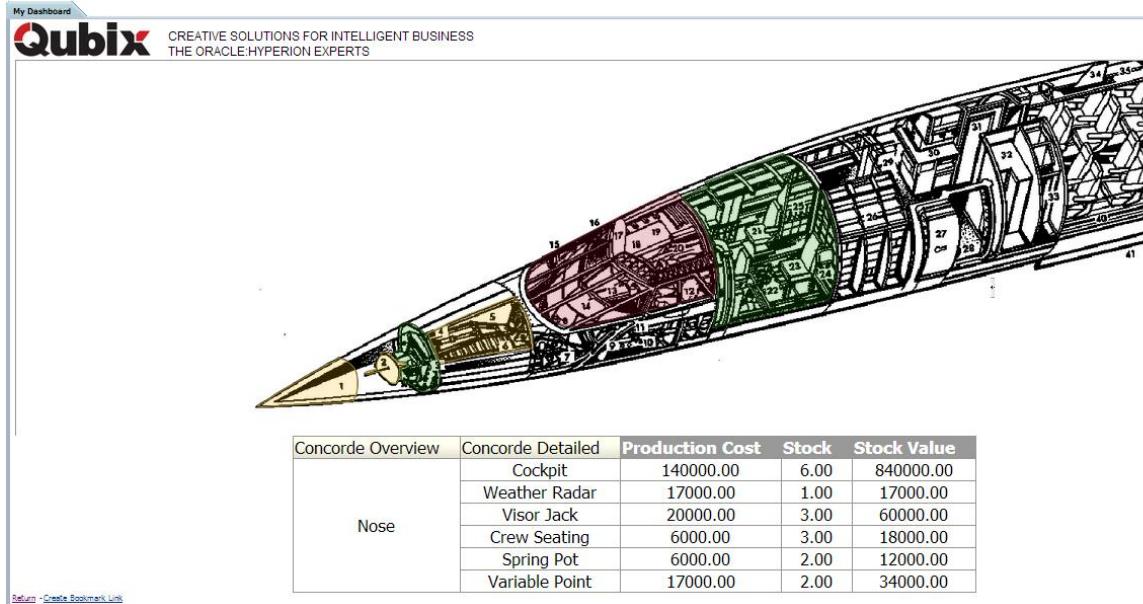
Our analyst can immediately see that the Cockpit has a relatively high production cost, and can reference the updated table of details to see exactly what that production cost figure is.
We could have further levels of detail. E.g. we could "drill in" to the Cockpit to see what the costs of the seats, visors and the windscreen are.

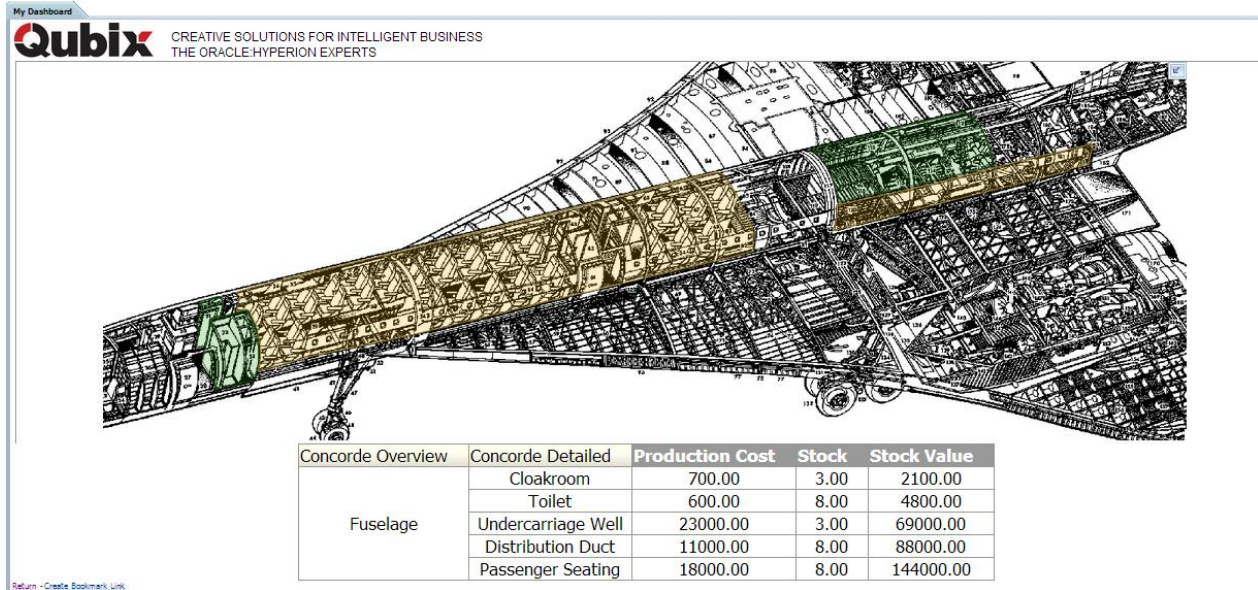Leading Innovation in Business Analytics

CONTROLLING THE LIMITS
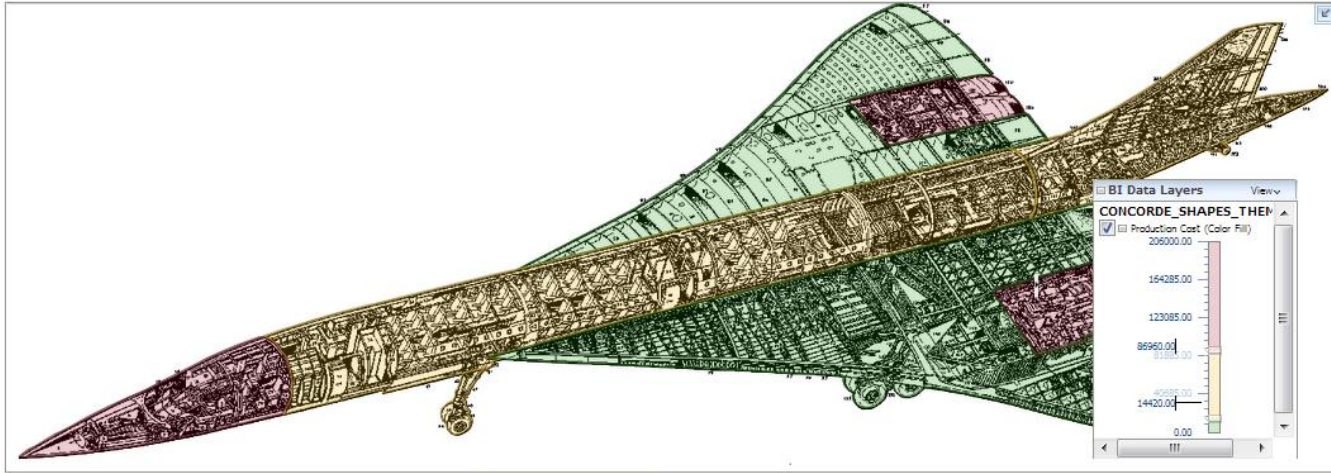
Clicking the small arrow to the right of the Visualisation Area brings up the Threshold Controls.

Our analyst can adjust the boundaries of the traffic light shading using the sliders to increase or reduce the thresholds between each colour.

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EXPLORE

Our analyst can then continue to explore other areas of the Concorde to see how other costs are being accumulated on a detailed level.

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THREE KEY BENEFITS...

Great visualizations are efficient — they let people look at vast quantities of data quickly.

Visualizations can help an analyst or a group achieve more insight into the nature of a problem and discover new understanding.

A great visualization can help create a shared view of a situation and align people on needed actions.

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THANK YOU...QUESTIONS?

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